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8-15-2013

## Best Practices to Promote Pollinator Habitat

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### Recommended Citation

O'Neal, Matthew E. and Hodgson, Erin W., "Best Practices to Promote Pollinator Habitat" (2013). *Integrated Crop Management News*. Paper 55.

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# Integrated Crop Management NEWS

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## Best Practices to Promote Pollinator Habitat

**By Matt O'Neal and Erin Hodgson, Department of Entomology**

The European Union's restriction on the use of neonicotinoids and the joint [USDA/EPA report](#) of a continued decline in honey bees reminds us of the ongoing issues with pollinator health. Specifically, the decline of honey bee populations is reaching a breaking point for pollinated crops in the United States. In an article published in *Wired* magazine (Keim 2013), entomologist Dennis vanEngelstorp from the University of Maryland noted, "We're getting closer and closer to the point where we don't have enough bees in this country to meet pollination demands."

Although the factors thought to be causing this decline are many, there are some simple things we can do to help conserve bees. All bees share some basic needs: something to eat and someplace to live. As noted in the USDA/EPA report, the habitat that is available to bees in the United States is shrinking in size and declining in quality. To reverse this trend, several universities, including Iowa State University, are investigating how to get more high-quality habitat in our landscape. This article will review this work and provide some 'best practices to conserve bees.

### Providing bees food

Midwest researchers have focused on native plants as a food source for bees and other beneficial insects. These plants include flowering perennials commonly found in prairies. At Michigan State University, Doug Landis is leading a team to study which of these plants and plant mixtures is most attractive to beneficial insects and least attractive to pest insects. Their research is summarized on a [website](#) that rates plant attractiveness and gives recommendations for growing them. Also, a chart showing when these plants bloom is included. They recommend selecting a combination of plants that provide flowers from spring to fall so that bees have a constant source of nectar and pollen.



**Photo 1.** Cup plant (*Siphium perfoliatum*) is a perennial plant that bees find very attractive, like this bumble bee. These plants grow 4 to 10 feet tall and produce several flowers during July and August in Iowa. Photo by Adam Varenhorst.

At Iowa State University, we investigated if the MSU recommendation would be more attractive to beneficial insects than other plants commonly found in the Iowa. We created a mix of plants from the list provided by MSU that were rated the most attractive to beneficial insects. The mix was constructed of 12 plants that provided a habitat that flowered throughout the growing season. With funding from the Leopold Center for Sustainable Agriculture, we observed during a [two-year study](#) that the 'best-bet mix' attracted more bees than single plant species (e.g., corn, switch grass, alfalfa or willow) and a mix of prairie plants currently recommend for reconstructing prairie. Furthermore, if the plant mixture was reduced to just two species, such as cup plant (Photo 1) and golden alexanders, it still out-performed most of the single plant treatments.



**Photo 2.** The 'MSU best bet mix' is comprised of 12 species of plants commonly found in prairies. This picture was taken in August when cup plant, pinnate coneflower (*Ratibida pinnata*) and swamp milkweed (*Asclepias incarnate*) are flowering. The best bet had the most bees of the nine different treatment options tested. Photo by Adam Varenhorst.

## Providing bees a place to live

Bees also need a place to live. For honey bees, this is usually a hive box provided by a beekeeper. But honey bees are only one of the nearly

thousands of bees found in North America. Most of these bees are not social and build nests alone. Depending upon the species, these nests can be found in the ground or in living or dead plants. Creating nesting habitat for bees can include providing undisturbed soil to building 'bee hotels' that offer material like stems, drinking straws and wood blocks with holes. The [Xerces Society](#) is a non-governmental organization that is focused on pollinator conservation. The Xerces Society has several [fact sheets](#) for how best to provide nesting habitat for ground nesting and stem nesting bees. Included in these recommendations are guides for building artificial nests.

## Reducing harm from insecticides

After providing food and nesting habitat, beekeepers can take an extra step to reduce the impact of insecticides. The Iowa Department of Agriculture and Land Stewardship has an apiculturist (honey beekeeping expert), Andrew Joseph, who maintains a registry of honey bee hives in Iowa. This [registry](#) is available for insecticide applicators so that they can contact beekeepers. By registering hives, beekeepers can make adjustments to limit exposure. At the same time, applicators are required to adjust their application time to early evening, when honey bees are less likely to forage.

## References

Keim, B. One-third of U.S. honey bee colonies died last winter, threatening food supply. 2013. Wired.  
<http://www.wired.com/wiredscience/2013/05/winter-honeybee-losses/>

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This article was published originally on 8/15/2013. The information contained within the article may or may not be up to date depending on when you are accessing the information.

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